

SOME
OBSERVATIONS
ON THE

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Translation *and* Abridgment

OF

Dr. *Boerhaave's* CHYMISTRY:

WHEREIN THE

Learned Professor is vindicated,
from the unjust Representations and
weak Criticisms of his Abridger.

In a Letter to *Cromwell Mortimer*, M. D. R. S.
Secr. and Fellow of the College of Phy-
sicians, *London*.

By J. ROGERS, M.D.

*Numquam melius torquebis invidos, quam virtuti & gloria
inserviende. Senec. in Epistol.*
*Scio quidem natura humana vitio, probitatem subjacere livori;
sed miror eo progressas amulorum insidias, ut crudo men-
dacio insontis famam peteretur. Symmach. ad Impp.*

L O N D O N :

Printed for JOHN SWALE, Bookseller, in *Leeds*; and sold
by J. BATLEY, at the Dove, in *Pater-Noster-Row*, 1733.

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Dr. Boissac's Chemistry

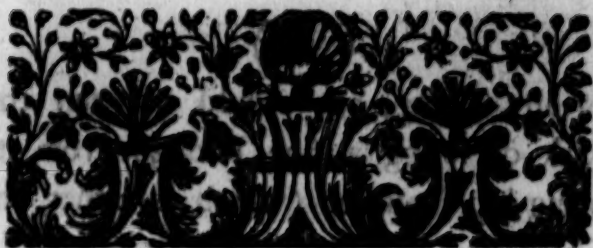


In a Letter to General Mordaunt, M.D. R.S.
Secr. and Fellow of the College of Phy-
sicians, London.

By J. ROBERTS, M.D.

L O N D O N :

Printed for John Sturt, Bookbinder in Fleet; and for
J. Bateley, at the Foot of Pall-mall, 1777.



SOME
OBSERVATIONS
ON THE
Translation *and* Abridgment
OF
Dr. Boerhaave's CHYMISTRY, &c.



HERE has lately appear'd
a very extraordinary Piece,
entituled, *Dr. Boerhaave's*
Elements of Chymistry faith-
fully abridg'd, by a Physi-
cian. The learned World has always
had a very low Opinion of Abridgments
in general, because, if an Author be good

for any Thing, one would not run the Risk of losing a fine Thought from its being lop'd off, or (which is oftner the Case) having it so obscur'd, as not to be perceptible: But forasmuch as there are a considerable Number of useful Retainers to the healing Art, who, from their Method of Education, and almost continual Employment, in making and compounding Medicines, are not extremely well qualified to read Books in the learned Languages; the great Reputation of the deservedly famous Author, and the Subject seeming to relate more immediately to them, must make such desirous to see him in a Language they understand. These meeting with a Translation and Abridgment from a Person who makes so large Pretensions to Plainness and mechanical Reasoning, may be easily mislead into a mean Opinion of the great Author, and a consequential Contempt of the many valuable Improvements in Medicine he has obliged the World withal. I have
always

always look'd on Geometry as the only certain Logick, and have admir'd its convincing Force in the illustrious *Boerhaave* particularly; but accidentally opening this Book, and finding the Author (if you will allow that Title to an Epitomizer) affect to account mechanically for his several Dissentions from him, I resolv'd to read it over, and shall give you an Account of what I thought most observable, having no other View in publishing these Pages than a Regard to Truth, and the good of my Fellow Creatures. I must bespeak my Reader's Favour in regard to the sudden Transitions the Nature of my Design will oblige me to, since it is not to give an Account of the whole Abridgment, but only of such Parts of it as directly or indirectly oppose or speak slightly of his worthy Author, and therein likewise oppose Truth and common Sense.

To begin with the Preface. I find that there, and in his subsequent very wise Notes, (which are what I shall chiefly take Notice of) the Abridger has used his Author as a vain Tautologist, without either Judgment or Learning, and seems to have translated and abridg'd him only to convince the World he ought not to have been translated or abridg'd. He begins his Preface with telling them how voluminous the Original, how abounding with superfluous Circumlocutions, and an *Affurance* that this Abridgment *contains the whole, except the Author's Dedication, which only gives us to know how his Brother, from studying Physick, became a Divine, and how the Author, from a Student of Divinity, took to Physick.*

As to the first of these Assertions, that the whole is contained in the Abridgment, I shall have Occasion to examine it
in

in the Course of this Treatise, but look on the Sneer upon the Dedication as an unpolite Piece of Peevishness. Dr. *Boerhaave* observes to this Brother the disagreeable Necessity ^a that compell'd him to undertake this Task; the many Dangers and Difficulties he had encounter'd in so tedious and hazardous a Course of chymical Experiments; that he had always been a faithful, an agreeable, a laborious Companion in them; that they had frequently spent whole Nights and Days together in exploring the Nature of Bodies; and that the Dedication was justly due to him, who had contributed so much to the Success of the Work. Is this so singular or ridiculous? Have not the greatest Men done the same upon the same Principles? As *Sydenham*, *Lower*, *Freind*, *Morgagni*, and innumerable others: And for relating how each alter'd the Course of his Studies, no one would

^a An incorrect surreptitious Copy.

be angry, who considers the Pleasure that arises in the Mind of a Reader, on discovering Passages of less Moment in the Life of an admired Author; as, whether *Virgil* was bred a Farrier or a Physician? Whether *Horace's* Father was a Fishmonger or an Exciseman? and by what Steps each obtain'd the so great Esteem of their common Master? But to proceed.

His Author, he tells us, *calls his first Volume, The Theory of Chymistry, imitating Le Febure.* A worthy Model truly to imitate! one whose Reasonings are the Perfection of chymical Enthusiasm, and whose Lemmata are proved by an *ipse dixit* of that illiterate Boaster *Paracelsus*: So on a lofty Pine perches the Bird of *Jove*, in Imitation of the Hedge-Sparrow; and so shall future *Newtons* publish their invaluable Labours, in Imitation of this Abridger.

We are next told, that *except a long Detail of Menstrua, little of the whole retains to this Art, and would do as well for a Piece of Agriculture, being Physicks taken from Du Hamel, Le Clerc, and some others.* A little good Nature would have prompted this Gentleman to consider, that Dr. *Boerhaave* never design'd his Lectures for Adepts, but Tyroes; for a large Number of young Gentlemen, some of whom might be supposed not to be extremely acquainted with Physicks: To them a larger Account of the Nature of Body must be as acceptable as useful, especially as he treats only of such Bodies as are of Use in Chymistry. The same Reason may serve for his being so particular in his Accounts of Things, and excuse the Fulness or (as our Abridger, *pro solita humanitate*, calls it) Prolixity, of his Work.

Chymistry is an Art, of all others the most extensive ; except that 'tis intended to improve : It takes in the whole Knowledge of Animals, Vegetables, and Minerals ; and these diversified a thousand Ways, and as oft to be multiplied into each other. Is not then a thorough Knowledge of Nature, or the Properties of Matter, and Laws of Motion, a necessary Foundation for this Study ? And because *Du Hamel* and *Le Clerc* have wrote well on Nature, must it of Course follow that his Author has borrowed his Elements of Chymistry from them ? Whoever has read them, will, I dare say, agree that he might, at least, as justly have tax'd him with borrowing from Dr. *Plot's* History of *Staffordshire*, or any other natural Historian, as either of these ; especially the latter, with whom, however, he has not put his Treatise on Body last.

Boerhaave has a different Design from either of them, and therefore treats his Subject in a different manner. The *Burgundian* and *Le Clerc's* Philosophy give a general Idea of all Nature; our Author, of the particular Alterations induced on particular Bodies, by Fire, Menstruums, &c. of use in Medicine. *Du Hamel*^b has, indeed, bestowed about ten Pages professedly on Chymistry; but then 'tis only to explode the Notions of some Chymists, who would maintain Salt, Sulphur, and Spirit, or Mercury, to be first Principles; and if elsewhere either of them mention any chymical Process, 'tis to illustrate some Phænomenon of Nature, without having the least Regard to Medicine: And as to its having equal Relation to Agriculture, I beg to know what Sublimation, Precipitation, Crystallization, have to do with that Art;

^b Pag. 101. Vol. IV.

or, strictly speaking, any of the numerous Experiments in the first Volume. For Example, in p. 165. mix Mercury and Sulphur, they unite into *Æthiops*; sublime by Fire, they continue still united and become *Cinnabar*; mix an attractive Body, as fix'd Salt, Lime, or Iron, the Sulphur adheres to these, and Mercury mounts pure. Or take Salt of Tartar $\frac{3}{4}$, Flowers of Brimstone $\frac{3}{4}$ ss; and mix, melt in a Crucible, they run into an Oil; or Salt of Tartar and Antimony melted, unite into Glass. Does this help to ripen our Apples, increase our Corn, or illustrate how Plants exert their vegetative Force? I am sure *Malpighius*, *Grew*, and *Hales*, have no Experiments of this sort. But to proceed.

Lemery and *Freind*, says he, do only contain the true Theory of Chymistry; the one accounts in a physical, the other in a mathematical Way, for all the Phenomena produced by Chymistry. Had this
Gentle-

Gentleman ever seen Dr. *Freind's* chymical Prælections, which he endeavours here to commend, he could not have talk'd of *Lemery's* Physicks; since he begins that excellent little Treatise with telling his Auditors, that Chymistry was sufficiently large, and that much Pains had been taken about it, but its Operations by no means philosophically accounted for; that those who have hitherto deliver'd the Phænomena of that Art, have made use of Principles neither intelligible nor explicable; so that it was not strange (there being no Foundation) to find no Superstructure. They talk (continues he) as if they had nothing at Heart, but to draw a Veil over their own Ignorance, at least not to remove that of others. *Lemery* had wrote long before this Time, and of course was one of the Authors here meant; for it would be an Affront to the great Reading of Dr. *Freind*, to imagine he had not seen a Book which had received more than six Impressions before

fore he publish'd these Lectures. How unfortunately then does he couple his Authors, when the one, at the very Threshold of his Work, declares the other ignorant of those Qualifications that are pretended to raise him to the honourable Parity. However, to do *Lemery* Justice, he was a considerable Man, and a faithful Chymist; and, had our Abridger not mistaken his Talents, he might have spoke to his real Praise, whose Diligence had made some useful Discoveries; as the Addition of Weight to various Bodies by Fire, the Phosphorus, his exposing the Methods for pretended Transmutation of Metals, and Improvements in the Preparation of some Medicines. In short, his Work is in nothing so defective, as what he is here unluckily commended for, *viz.* accounting for the Phenomena of Chymistry in a physical Way; I shall just offer a short Sketch of it.

He

He begins with the five Principles of Chymistry, Water, Spirits, Oil, Salt, and Earth; these are Miscibles, or uncompounded Bodies: Then he goes on with a Definition of their being active and passive; and, after a deal of unintelligible ranging and deranging, comes to particularize three sorts of Liquors, qualified with the Name of Spirit, *viz.* Spirit of Animals, the burning Spirit of Vegetables, and the acid Spirit; which Names he, by and by, dislikes, and would have the Spirit of Animals called a volatile Salt dissolved. The Liquors which come from Oils, might have been called an exalted Oil, and the acid Spirits a fluid Salt.

And, *p.* 3, 4. the Spirit which is called Mercury, is to be the first of the active Principles that appears to us, when we

make the Anatomy of a mix'd Body.
 'Tis a subtil piercing light Substance, &c.
 yet p. 10. says, the Spirit or Mercury
 which Chymists have talk'd on, is a mere
 Chimera : Is not this a strange confound-
 ing of Ideas ?

Pag. 12. The whole of his Physicks
 turn upon Acids and Alcalies. *As for
 Salts*, says he, *I am apt to think there
 is one chief, of which all the rest are
 compounded, and do conceive it to be made
 of an acid Liquor, sliding through the
 Veins of the Earth, which doth insensi-
 bly insinuate and incorporate in the
 Pores of Stones, which dilates and atte-
 nuates ; afterwards, by a long Fermenta-
 tion and Concoction of several Years, a
 Salt comes to be form'd, which is called
 Fossile.*—Now Stones are an Alkali.
 This is all spoken gratis ; and from this
 imaginary first vegetative Principle, *Acid*^a,

^a Pag. 21.

he maintains that all Plants indiscriminately (analyz'd without Fire) contain only an acid Salt.

Ebullition on the Affusion of an Acid, he allows * to be the Criterion of an Alkali. The worthy Dr. *Grew* † found not only Ebullition, but sometimes considerable and lasting Heat from such Affusion on several Vegetables; as the Stones of most Fruits, *Arenulæ* about the Coares of Pears, Roots of *Pyrethrum*, *Kermes* Berries, Shells of *Gromel* Seeds, &c. whence he concludes that there is an alkalyzate Salt existent in Plants, even in their natural State. And Dr. *Freind* supports *Grew's* Opinion from Experiment on *Glass Wort*.

He brings this Acid into the Explication of Diseases ‡. As, *the Pox is no*

* Page 21, 25.

† *Grew's* Experiments, pag. 21. and *Freind's* *Prælect. Chym.* pag. 20. in Annotations.

‡ Page 163.

thing but an Acid, to be cured by alkaline Mercury; for as Mercury mix'd with Salt and Vitriol sublimes with a vast Quantity of those Salts united with it; so, when mix'd with Suet, and rubbed on the Joints, &c. it mixes with, and carries off, the acid Ferment of the venereal Matter, as it doth Salt and Vitriol.

At this Rate, the testaceous Powders, and volatile animal Salts, would not fail to eliminate this Bane of Debauchery; and besides, when the Distemper is found to be cured, sometimes by a few Grains of Mercury, already as much loaded with acid Salts, as the strongest Constitution can bear, *viz.* Turpeth mineral Wurtz's, the red and green Præcipitates; nay, in some athletick Constitutions, even corrosive Sublimate has been used with Success; what then becomes of this pretended reasoning? or is this such an Author as the young Physician should form himself upon?

As for *Freind*, he was indisputably one of the Ornaments of our Profession and Country ; but the Abridger mistakes, if he thinks he ever publish'd a Body of Chymistry : He has, indeed, philosophically accounted for several Changes, induced on Bodies by several chymical Processes, without meddling with the Processes themselves, *v. g.* Calcination, or reducing, by Fire, Bodies into Powder, is performed by the attractive Force of the Body to be powder'd, being taken off ; which Force decreases in a duplicate Ratio of the encreasing Distances of its component Particles. These Distances encrease by the Intervention of the Particles of Fire, or other Bodies, used to further the Operation, as Sublimate, Sulphur, &c. which, by separating the Parts, remove the Attraction or Solidity, lessening the Specifick, and encreasing the absolute Gravity. This he illustrates by Examples ; as, the Addition of Weight,

C 2

by

by the Corpuscles of Fire, &c. and confirms by mechanical Reasoning.

So, Distillation and Sublimation, from these Lemmata, that if the Particles of Bodies, swimming in a Fluid, become specifically lighter than that Fluid, they will be raised above it; and, that Spheres are in a triplicate Ratio of their Diameters.

It is well known that the specifick Gravity of Water exceeds that of Air, a little above eight hundred times; but if a Particle of Water be so rarified, that its Diameter be encreased ten-times, it will become lighter than Air; for the Cube of the Diameter that Particle obtains, is a thousand, its absolute Gravity being so entirely lost, as to become specifically lighter than Air, and so of the rest: But, in his whole Work, he has not given us a single Process, except that of *Mynsicht's* Tincture of Steel: Even that is a kind
of

of Digression from his general Design; and he only intends by it to shew what a deal of Trouble, to little Purpose, there is in it.

Hence it appears, that *Boerhaave* (supposing his Work well performed, and I don't perceive the Abridger finds any Faults, but where he either does not understand him, or perverts his Sense) has given the World a most useful and much-wanted Piece, and on a Subject, if we credit *Dr. Freind*, on which none before him had wrote tolerably^a, and which, I may say, has lain untouch'd since the Birth, or, if you please, Revival of rational Philosophy under the great *Sir Isaac Newton*.

Our Abridger, in the next Paragraph, observes upon *Physicians, who have enter'd the Lists without a liberal Educa-*

^a *Praelectiones Chymicae*, Pag. 1, 2.

tion. I can scarce think even he can glance at *Boerhaave* here, since all the World allows his very great Learning, and knows he had a regular Education: But, that Innuendo apart, I heartily subscribe to the Abridger's Sentiments; but then I beg to know why so zealous a Stickler as he should attempt to translate a *Latin* Work, since they must be ignorant, indeed, that could not read it in the original Language, and shall only desire him to consider the threadbare Proverb, *Qui alterum incusat ignorantia, ipsum se intueri oportet.*

The rest of this Rhapsody is not worth taking Notice of; 'tis a mere random Shot; he gives an Answer where no Question is ask'd, to make appear unpitied Mistakes; why so little Humanity? I am sure I am sorry for his mistaking *Boerhaave*; but his Answer is, *that where Quantity or Motion are to be accounted for, Mathematicks take Place;*
but

but where Qualities are the Theme, then Experience, back'd by Experiments, serve the Turn. Have not *Borelli, Bellini, Pitcairn, Newton, and Boerhaave*, in this very Treatise, and several others, accounted mathematically for the Qualities of Matter? Their whole Works are little else. This will appear more plain, if we consider that the Qualities of Bodies depend on the Solidity or *Quantity* of Matter, and the Form and Disposition of its Particles, or *Motion*. And, as I before observed, *Dr. Freind's* chymical Prelections are merely designed to explain the Qualities or Alterations brought on Bodies from different Operations.

As for Experience, I have always thought it consisted in a Knowledge of Experiments, so can't see how it can be back'd by it self; but incorrect *English* is the smallest Fault in this Abridgment.

He concludes his Preface by wishing his *Author* had aim'd more at the *Correlation between animal and chymical Actions*; would he have had more Philosophy? Why did he just now complain of too much taken from *Du Hamel*, &c.? or (for 'tis obscurely express'd) would he, with his Friend *Lemery*, have the human Body be a Still, and a cool Head its Top or Refrigeratory? Or, if he wishes to have had more full Directions for the medicinal Use of the several Processes, 'tis wishing a general System of Physick, unless he would have him dwindle into a Writer of Receipts; for he has annex'd to each Process a Section of Uses, wherein is contain'd the Nature, as whether diaphoretick, diuretick, cathartick, emetick, aperient, restraining, &c. and often even the Method of Application and Doses.

ⁱ Course of Chymistry, p. 163.

And as to the *other Differences between his Author and him*, which, he says, *he may some other Time clear up*; would he but study Truth and good Sense, they would probably no longer subsist, and he might save himself and others a great deal of Trouble.

My Reader will, I hope, pardon my having detained him so long in the Preface; but, as it contains many peevish Reflections, I thought it necessary to clear out the Porch, ere we enter'd the Building.

Where our Abridger immediately stumbles; for, in the first Line of the second Paragraph, he says, *So thinks Zosimus Panopolita, known to Agricola*: Of course Contemporaries; whereas, in reality, they lived at about nine hundred Years Distance^k. His Author says, Zo-

^k *Alfredi Chronol. Alchym. p. 453.*

simus's unpublish'd *Greek* Manuscripts were known to *Agricola* in 1550. so that he either has not understood his Author, or abridg'd away his Sense.

At the latter End of the same Paragraph, where *Boerhaave* is giving the usual Etymon of *Sybilla*, viz. σις, i. e. δις βυλλα, i. e. βυλλη, a Note is affix'd, wherein we are told, *his Author mistakes the Greek Dialects ; for search, and you will not find that δ is changed into ζ.* He that knows the *Greek* Letters, will find 'tis σ, not υ into υλλ, nor @ into υ; so that the whole fabulous Derivation is a Piece of sham Learning. One need not be much acquainted with the *Greek* to know that Ζeus, as well as *Jupiter*, by the *Latins*, is used κατ' ἐξοχην, for Θεός and *Deus*; and that tho' δις is the Genitive Case of Ζeus, yet ὁ δις δμ is used for any Thing proceeding from God or *Jove*; as ¹ ω διος αιδης κ, ταχυτερας ποαι;

¹ *Aeschyl*, in *Prometh.*

so that *δὲ βελι* is *consilium a Jove oriundum*^m. *Plutarch* makes his Spartan answer one boasting his Oratory, *Ἀλλὰ νῦν σὺ σὺν ἀνὲν τῆς ἀληθείας*. *Aristophanes*ⁿ and *Zenophon*^o, both use the same Word, In the Table of Dialects, at the End of *Westminster Greek Grammar*, you'll find *σ* is used for *ς*, and the Example is the Word in dispute, *σεῖ* for *ςεῖ*; and tho' hence, and *σὺ* being in the dual Number, it may be thought rather *Dorick* than *Æolick*; yet 'tis well known they were Sister Dialects, the latter being a Colony of the former. Upon the whole, it appears that *σεῖ*, *ςεῖ*, *σιῖ*, *διῖ*, are one and the same Thing; and from *σὺς βελι*, *Sy-billa* is a natural, an easy, and significant Composition, well adapted to their Pretensions, *i. e.* Knowledge of the Will, or Counsels of *Jove*: which Positions are well supported by the elegant Christian *Cicero*, *Celins Lactantius*, who, speak

^m *Apoph. Lacan.* p. 233.
Scen. 2.

^o *Lib. IV.*

ⁿ In *Iyffistrate*, Line. 12.

ing of the *Sybil*^p, says, they were so called from denouncing the Counsels of the Gods; the *Æolians*, in their Dialect, calling the Gods *σινες*, and not *δεες*, and Counsel *βουλη*, not *βελη*. The learned *Onuphrius Pancinus*, in his Book of the *Sybil*s, prefix'd to our Countryman *Cook*'s^q *Sibilline Oracles*, gives much the same Account: His Words are, *Æoles enim σινες Deos dicunt, & βελη consilium sive sententiam; ergo Sibyllæ quasi sibula dictæ, id est quæ Dei consilia mortalibus enuntiant*; and quotes *Hieronimus* against *Jovinian* to support his Opinion. I will only add, that none of our Lexiographers give any other Derivation. To whom then must this Charge of Ignorance belong? I need not say on whom it recoils. It brings into my Mind the Abridger's Predecessor, the memorable *Quincy*, who compiled a physical Lexicon, and pretended to instruct others in the Sense of

^p Cap. 6. de Testimon. Prophet. & Philosoph.

^q *Opsopæus*. Edit. Paris. 1507. Pag. 2.

Greek Words; tho', at the same Time, he was forced to acknowledge (before Witnesses) that he was not vers'd in the Language he pretended to explain, and had made a Criticism ridiculously false on the Word *Euodia* :

However, in the very next Annotation, our Abridger falls palpably into the Error unjustly charged on *Boerhaave*, viz. Ostentation of sham Learning. His Author had told us, that *Kμα* was the Name given to the Book that contain'd the Mysteries of Chymistry, and that the same Word in *Arabick* signified to hide; upon which he remarks, *If we must rely on Similitude of Names*, (is there any Similitude betwixt *Chema* and *Chema*? Is it not sameness?) *why may we not derive*

† See Dr. *Strother's* Practical Observations on the epidemical Dissemper, 1719. pag. xxvi. of the Preface; and looking this Word in the said Lexicon, I found, in the same Page, *Epirhema*, *Essence*, and *Exanthema*, erroneously render'd, and did not think it worth while to look further.

from

from the Hebrew Word חמם calefecit (2) because we are directly told by *Zosimus*, in the *Eusebian* Notes, 'twas so called; but not the least room to imagine it ever was called *Chamia*: But this Gentleman is very fond of a Scrap of *Hebrew*, and omits no Opportunity of bringing it in, as twice in this *Page*, the last Time, without any Provocation. And, pag. 15. *Boerhaave* observing the best Tin to be found in *Britain*, and that from *Baratanac*, i. e. the Land of Tin, it might be derived; he (neglecting the more probable one *Le Clerc* gives, viz. *Britban*, i. e. *Exterior*, Islands) whips it out of the Text into a Note, in order to bring in his *Hebrew* ברך *Barab ager*, and חני *Ani navis*; so it is a Field of Ships. He gives us too (though the *Arabians* are known to have been the first Introducers of chymical Medicines) the Derivations of *Aliobol*, pag. 177. of *Kalip*. 179. of

* חמם sounds *Hamas*; tho' the *Septuagint* have render'd the *Heb* by χ.

Fornax, pag. 210. of *Rob.* pag. 6. lib. 2.
as from *Hebrew Roots*; which, as *Hudibras* says,

———— Still are found
To flourish most in barren Ground.

Our Abridger is loath to quit this Subject: He would fain persuade us he understands *Greek* better than his learned Author; for, in his next Note, he says, *Χημωσις*, not *Χημια*, is the *Greek Word*. He here, like the Laureat, even outdoes his usual Out-doings. His Author is saying, that *Egypt* it self was, in ancient Times, called *Chemia*, and quotes *Plutarch* in *Isis*, and *Osiris*, pag. 364. who says; For as much as the *Ægyptian Soil* is extremely black, as it were, the Black of the Eye, 'tis call'd *Chemia*, which Word signified the Black of the Eye, in their most ancient Language; or, as he explains it afterwards, in the sacred Language of the Priests, not in the later *Greek*.

Greek. And *Chemosis* has quite another Signification; 'tis derived from *Χαωω*, *Dehisco*, and is a Disease of the Eye, resembling a Chasm, or gaping. *Galen* defines it thus: 'Tis a violent Inflammation of the Eye-lids, whereby they are turn'd outwards, and not able quite to cover the Eye. But properly (adds He) 'tis an Inflammation of the White of the Eye, whereby the *Iris* seems to lie in an hollow Chasm, or Gap. And *Paulus Aegineta* has compounded these two Definitions, and says, 'tis call'd *Chemosis*, when both Lids are so inflamed as to be perverted, and not able to cover the Eye; the White of it being higher than the Black. What Relation then can this Name of a Disease have to this Subject? It can tend to prove nothing, unless that its Introducer did not understand what it meant.

* In *Introductions seu Medicis*, pag. 249. Edit. Constant. 1536.

• Lib. III. Cap. 22.

But Dr. *Boerhaave*, pursuing his History of the Name and Art of Chymistry, says, that the working of Metals was the original of both; and that by compounding the Fables and Histories of the Ancients *Vulcan*, with that of *Tubal-Cain*, they will appear to be the same Person; and, for further Satisfaction herein, refers them to *Voss. Id. g. 1. 65*. Here, upon we are told, *the false*, i. e. surreptitious Copy before mentioned, *is fuller than the true, which says, that Tubal-Cain*, (in his darling *Hebrew* Character) *by throwing of Tu, is Balcain; hence, by Corruption, Vulcan*. I think, *Boerhaave* had left a Matter of so little Consequence plain enough, since 'tis so well known, that *h* and *v* are frequently used for each other; as *sebum* and *seum*, *virgo* and *virgo*, *biginti* and *viginti*: And in old Inscriptions, especially monumental ones, we often see *bixit*, *biarum*, *bidua*, for *vixit*, *viarum*, *vidua*, &c.

You shall, in some *Greek* Grammers, see in the Alphabet, β written *vita* *. They write *Virgil* Βιργιλίου, and *Varro* Βαρρων; so that *Balkan* or *Vulcan* would not have been a Difficulty to a School-Boy.

In his next Note, he denies (if you will allow an ironical *Erotesis* to be a Denial) that there were any chymical Medicines used three hundred Years ago. *I should be glad*, says he, *to know one chymical Remedy ever known till within these two hundred and odd Years*. Tho' this Person may be easily supposed not to have read any of the *Arabian* Physicians, yet 'tis strange he should set up for a Critick in these Matters, without having seen either *Le Clerc's* or *Freind's* (no less entertaining than useful) Histories of Physick; where, especially in the latter, he would find several chymical Medicines

* *Clenardus, Ramus.*

used by *Rhazes* *, particularly the *Oleum Philosophorum*, who is very exact in explaining the manner of making it, in a Glass retort, such as will bear the Fire, and well luted, increasing the Fire gently by Degrees, till a red Oil comes off by Distillation. *Rhazes* mentions several others, as Mercury sublimate, Oil of Eggs, &c. and died old and blind, A. D. 932. †; so that here are chymical Medicines used eight hundred Years ago. Later Writers have a greater Variety; as *Actuarius* ‡, *Avenzoar* §, *Mesue* ¶, *Petrus Aponus* ††; and *John Arden* ‡‡, who flourished at Newark in Nottinghamshire, in 1349. recommends Colcothar

* *Freind's History of Physick*, Vol. I. p. 378.

† *Ibid.* p. 45.

‡ *Ibid.* p. 293.

§ *Id.* Vol. II.

p. 201.

¶ *Mesu.* p. 54. & *Passim*, several distill'd Waters, and p. 168. half a dozen chymical Oils; and I could instance several more among the *Arabians*, though a very worthy Author has said they had not above six.

†† *De Aegritud. cordis*, cap. 2.

‡‡ *Cure of a Fistula*, p. 100.

of Vitriol, and Realgar, which, he says, is an artifiical Confection, as Arsenick sublimed.

Hence 'tis evident, chymical Medicines were used long before the Time our Abridger enquires after; since the latest I have mentioned, wrote three hundred and eighty four Years ago.

In his next Note, (for I don't reckon upon them that only fill up a Space at the Bottom of the *Page*, and have nothing, not even ill Manners, to recommend them to Notice) *pag.* 17. having, at the End of the Pargaraph upon Allom, erroneously made his Author say, *Hence Spirits of Salt, of Nitre, and of Sulphur, are all the Acids extant*; he cries out, *A Mistake, for Spirit of Vitriol is different from all, as Experiments convince us.* Dr. Boerhaave's Words are, *pag.* 46. *Urde in salibus fossilibus conficiundis, natura videtur adhibuisse acidum triplex;*
nempe

nempe spiritum salis, nitri spiritum, & sulphuris ; and, against this Passage in the Margin, has put *principia salium fossilium*, i. e. Hence Nature, in the Conformation of fossile Salts, seems to have applied three sorts of Acids, to wit, Spirit of Salt, of Nitre, and of Sulphur ; is this any thing like the Abridger's Translation ? He mistakes his Sense, and then finds Fault for his being mistaken ; but, as it happens, our Abridger, either through Ignorance or Misfortune, is in the wrong as often as he contradicts ; for, upon Examination, I believe, it will not be found, that there is any Difference betwixt Spirit of Vitriol and of Sulphur ; they are indifferently order'd in Medicine ; they give an equal Acidity to Liquors, and equally turn Syrup of Violets red. Mr. G. Wilson says, the Oil of Sulphur is the Oil of the Vitriol of Sulphur, and Oil of Vitriol is the Oil of the Sulphur of Vitriol. In the Philosophical
Transf-

Transactions, there are many Experiments that prove the sameness of these two Spirits, where 'tis observed, that *Vitriol may be made from Strata of Sulphur, on thin Plates of Copper or Iron.* Hence, says he, *the Affinity, I had almost said Identity, of the saline Principle in Sulphur and Vitriol, appears.* And again: *True inflammable Sulphur may, several ways, be recovered out of Oil of Vitriol, or Sulphur, many Times rectified, and, in appearance, free from such Mixture.* Hence, I believe, no specific Difference appears, and wish he had told us his Experiments to prove one.

His Author having gone through the Metalick, is now come to give a general Account of the Animal Kingdom; and observes, that Animals have Salts peculiar to themselves; that he has not found

any (at least in found Bodies) to be alcalious, fix'd, or volatile, nor yet acid, unless from Sea Salt, or such-like, receiv'd into, but not changed by the Body; and that Animals using no Sea Salt in their Food, have neither a latent Acid in their Blood, nor fix'd Salt in their Urine; but that the whole, by Putrefaction, or a strong Fire, becomes alcalick^f. To which the Abridger replies, that *he has found Serum turn Syrup of Violets green, and Sublimate Water white; therefore it contain'd a volatile Salt.* As this Gentleman very often afterwards takes Opportunities of making this Objection to his Author; and, as the Argument seems to be of Moment to be thoroughly understood, I shall endeavour to set it in its fullest Light. The turning Syrup of Violets green, precipitating a white Powder from a Solution of Mercury sublimate, and a grey or brownish Yellow, from

^f Boerhaave, Vol. I. Pag. 66.

one of White precipitate, is the most usual^s, because most easy way to discover volatile alcalick Salts. I allow, that having made Trials with Serum of several Persons, I found it change the Syrup of Violets green; the same likewise did an Infusion of *Luteola*, or *Turmerick*, or *Gutta Gamba*, which can have no Suspicion of being alcalious: And I suppose that generally other yellow Tinctures would have the same Effect, and so this Phenomenon to proceed only from the green or yellowishness, wherewith I have found all Serum to be ting'd, especially having boil'd up some Serum with fair Water, and clarified it with the White of an Egg, whence I had a clear white Jelly, which being dissolved in some of the same Syrup, no way chang'd its Colour. And besides, as the great *Newton* has sufficiently prov'd, that Colours are inherent in the falling Rays of Light, and not in the

* Boyle's History of human Blood, p. 58.

Bodies on which they fall, Arguments drawn therefrom are less decisive. As for the Solutions of Sublimate and Precipitate, Spirit of Sal Armoniac turn'd the former immediately milky, and, in a few Minutes, precipitated a very white Powder, and from the latter a grey or brown one; whereas Serum with the former became gelatinous, precipitating no Powder at all, nor with the latter made the least Alteration in the Colour of the Precipitate. But, notwithstanding his Zeal here to prove an Alkali in our Juices, he afterwards is more angry that they are not allowed to be Acid. In his second Volume, in several Places, particularly p. 117. in the Middle of a prevaricating Annotation, he says: *But all this Author (Boerhaave) has hitherto done, is evidently erroneous; he has endeavoured to banish Acids from our Juices.* This Note is on *Process.* 114. where, I think, his Author has sufficiently cleared up the Matter; for having procured the Serum

of a sound Person, to one Portion of it he puts the strongest Vinegar ; to another, Spirit of Salt ; to a third, Spirit of Nitre ; to the fourth, Oil of Vitriol, but no Effervescence ensues ; to two other Portions of the same Serum, he adds a fix'd Alkali, and a volatile one, still no Signs of any Conflict or Effervescence ; but on adding together two of the said Mixtures, *viz.* that with the fix'd Alkali, and that with Spirit of Salt, a violent Heat arises, and the Liquor huffs up so as to occupy ten times the Space it did before : Is not this sufficient Proof that it contains neither Acid nor Alkali, since there can be no Reason why such opposite Salts should not exert their Force in, as well as out of the Body ? And what a fine Condition should we be in, to have our Vessels distended to ten times their natural Bigness ? Nay, the ingenious and industrious *Hales* found as much permanent elastick Air, as exceeded in Bulk, above an hundred times, the Body 'twas
pro-

produced from, generated in two or three Hours, and that too an animal Concretion, *viz. calculus humanus*, on the Affusion of Spirit of Nitre ^h. I might add that Serum is almost inodorous and tasteless, however nothing poyant, and so mild, that drop'd into the Eye, it gives no Uneasiness, nor applied to the most tender Ulcer, or even wounded Nerve, occasions any Pain, but rather the contrary. Our illustrious *Boyle* made many Trials ere he could find any fix'd Salt in human Blood, till, with utmost Labour, he procured a small Quantity, which he found scarce to differ in any Thing from common Sea Salt ⁱ; which real Sea Salt, *Boerhaave* all along allows of. *Verbeyen*, that laborious Analyzer of the human Juices, tho' prepossessed with a Notion of an Acid, from our feeding on sour Herbs, &c. is forced to own he could

^h *Hales's Staticks*, pag. 196.

ⁱ *Boyle's History of Human Blood*, pag. 57.

not find any^k, nor procure Fermentation from mixing either Alkalies, or Acids, with Blood or Serum^l. And our great Dr. *Freind* denies Fermentation to be the Cause of the Plethora, *Quia in sanguine desit acidum*^m.

I am here naturally led to take Notice of the rest of this Observation, shall give you his own Words, and answer them in as few as I can. *Here the Author has made his last Push! All intestine Motion is his'd out of his School, and to enter no more there; but, in the Name of Wonder, what has he substituted? Truly, nothing: He has taken all the Pains he is capable of to destroy the Doctrine of intestine Motion, but has settled no other in its Place: But all the*

^k Vol. II. Pag. 38. *Hætenus nullum in sanguine, tam humano quam brutorum, offendi salem acidum.*

^l Ibid. *Extractum illud (i. e. sanguinis) miscui partim cum variis alcalicis item cum acidis, sed nullam observavi fermentationem.*

^m *Emmenolog.* pag. 9.

Author

Author has hitherto done, is evidently erroneous; he has endeavour'd to banish Acids from our Juices; and, when he meets with them, he cries out, whence this Acid? Ignoro (I know not) see him on Phosphorus; and when he, en passant, owns an Acid in the Salt of Urin, he slurs it; and, as his Students make no Objection, he hopes none besides will; and as for intestine Motion, he takes it up again, as well as Rarefaction, in Process. 115. Having just given an Account of this, 114th Process. and shewn, from Experiments, the Nullity of this Fermentation, as well as the direful Consequences that must attend, were there any such Thing, I shall dismiss this Part with the Words of the just mentioned Dr. Freind; ⁿ speaking of an imaginary Ferment, natural to the Body, and designed to procure the menstrual Plethora, which De Graaf says is in the

ⁿ *Emmenolog.* pag. 10.

whole Mass of Blood, and Bayle, a Native of the *Uterus*, he says; But already that absurd Doctrine of Fermentation is almost out of Date, and, by the soundest Writers, has now a long Time been exploded.

But I would not have the great Man, (whose Cause I endeavour, tho' weakly, to defend) nor my self, be thought to deny that Acid, Alkali, and Fermentation, may happen sometimes to morbid unsound Bodies, in some extraordinary Cases. The Experiments are all supposed to be made; *cum sanguine sani*, as the Professor generally speaks; and you know in his Aphorisms he mentions, and in his Lectures explains, and gives Instances of, the Acids of Milk, Sweat, the Saliya, &c.^o, as well as the nidorous Belchings, putrid bitterish Filth on the Tongue, Palate, &c.^p. And, in-

^o Aphor. §. 64, &c.

^p Id. §. 85, &c.

deed,

deed, as Mortification is an alkaline Putrescence, so Fermentation may happen, at least, in Abdomine, but all only in a morbid State.

In the latter Part of this Observation, he unjustly represents his Author, saying what he does not say, *When he meets with them, he cries out, Whence this Acid? Ignoro*; whereas his Author, giving an Account of *Phosphorus*^a, does not say he ever found any such Thing himself, but that Mr. *Homburg*, in *Monument. Act. Reg. Scient.* 1706. and in the *Memoir. de Mathem. & Phys.* 1692. mentions an acid Matter, like Oil of Vitriol, produced from Phosphorus, dissolv'd by the Air; on which he observes, that he does not know whence this Acid can proceed, which has not the Nature either of Animal, or Vegetable, unless perhaps in making it, (which is certainly the best

^a Vol. II. Pag. 327.

Way) they have added some Allom,
 And for his taking up again intestine Motion, and Rarefaction, 'tis no further in his 115th *Process*. than by saying that Serum, having stood some Days in 70° of Heat, becomes putrid, alkaline, intolerable to our Senses, and effervesces with Acids.

But to return where I left the Abridger, *Vol. I. pag. 23.* where Dr. Boerhaave observes, that sometimes, though rarely, he has found a fix'd Salt in Urine, which proceeded from the Sea Salt in it; on which *he is tax'd with forgetting this in the Sequel, and denying that Sea Salt has any fix'd Salt in it.* This Gentleman should mention the Place, or else 'tis a mere wild Goose Chase. The worthy Professor, indeed, *pag. 491.* says, that the most fix'd Salts may be render'd so Volatile, as to be dispers'd in the Air, by a Process he gives them. But this does not deny their Existence, nor can I,
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in any Part of his Work, which I have carefully read over, find any such Position.

But the Author proceeds to observe how various chymical Examination finds animal Oils, as volatile, fix'd, acrid, fatty, saponaceous, &c. upon which our Abridger tells us, *All Oils are the same, but only vary by Mixture with other Bodies.* A bold and positive Assertion! which yet does not contradict *Boerhaave*, who speaks with the greatest Caution, in an Affair not hitherto fully clear'd up by Experiments, nor agreed to by the universal Suffrage of Philosophers, and learned Chymists: His Words are *, *Olea animalium ar's chemica examinans bene diversa invenit, ostendit, scilicet in his, quæ subtilia adeo, &c.* And, afterwards †, he enumerates the specifick Differences of essential distill'd Oils, in Colour, Con-

* Vol. I. Pag. 68.

† Vol. II. Pag. 126.

sistence, and Weight ; as that of Mint brown, Lavender yellowish, Cinnamon a bright Gold Colour, Wormwood blackish Green, Yarrow Blue, &c. that Oil of Rinds of *Seville* Oranges is extremely thin and liquid ; as is Lavender and Sassafras ; on the contrary, that of Roses is thick, so is Fennel, of Aniseeds thicker, &c. That Oil of Nutmegs, Cloves, and generally of Vegetables growing between the Tropicks, are specifically heavier than Water ; whereas others, as Lavender, &c. are much lighter ; neither is their Gravity owing to their Thickness, since Oil of Sassafras is as thin, and as heavy, as any : Yet he declares it a Matter worthy of being further enquired into, whether these Differences proceeded from a Variety of Spirits, from the Oil, or from some third Principle ascending with it in Distillation^t.

^t Vol. II. Pag. 126. *An hac differentia a varietate spirituum?—sane in hac rem, hactenus necdum liquidam, inquirendum.*

Here we may observe how modestly the learned Author expresses himself, how differently his Opposite the Commentator. But to proceed :

His Author having given us a curious physical Account of Chymistry, concludes, that Parts were not such in Bodies, as they appear when separated, &c. To which our Abridger, *Why so compounded Bodies indeed can't act like simple ones; but whenever they are made use of, they act in a compound Ratio, of their various Components.* He here plumes himself with the Appearance of geometrical Reasoning; and were we here talking of progressive Motion, of Extention, of relative Gravity, &c. his Argument might take Place; but the Modes, Forms, and Alterations of the Effects of Bodies, on our Senses, may be too minute and subtil for that demonstrative Science, *v. g.* A Mixture and chymical Management of Mercury, Spirit of Nitre, and Oil of

Vitriol, produces Turpith Mineral. The Bulk and Gravity are in a compound Ratio of the Components; but this does not account for the vivid yellow Colour, nor its Effects on our Bodies, other than a *Posteriori*. Lines and Figures cannot describe the Mode of Fermentation; as why a Liquor cool, and void of any intoxicating Quality, should thereby become the contrary. This I shall beg Leave to illustrate, by a Quotation from the learned Dr. Stare^u: *Apricocks, Peaches, Strawberries, Mulberries, are, in the Form of Fruit, very cooling; but if you juice them, and set them upon a Ferment, then there are such Spirits as will rise, and may be distill'd from them, which will obtain a hot Quality, if drank, and will take Fire and flame as Brandy does.——Thus Grapes, during their former Constitution, of Grapes, give a sweet cooling Juice; but, after a Fer-*

^u *Vind. Sugar. Pag. 38,*

mentation,

mentation, become a very warming Liquor, call'd Wine ; and, by Distillation, advance yet higher, give a Liquor or Spirit that will fix our Blood, and be turn'd into Flame.—— Moreover, the richest Mountain Wine, the cordial and warming Sherries, will degenerate into Vinegar, lose their heating Faculty, and become a Cooler, as Vinegar is allowed to be.

Thus it behoves Philosophers to get off from the Fancies and Chimeras of the Ignorant, and not suffer themselves to be divested of their Sense and Reason at the same Time : For you see that what to us may seem but a small, inconsiderable Change, does really make a new Body, quite differing from what it was just before.

His next Notes, for a good Way, are only pert Remarks, or impertinent, but not contradictory Explanations. As, p. 91.

Dr.

Dr. *Boerhaave* observing that many curious exotick Plants have been lost, (the Care of which, by the by, is not so much out of the Way of a Physician) because the green Houses have not been properly erected; and, giving Directions therefore, from astronomick and gnomonick Principles, we have a Note, *As to the Construction of winter or hot Houses, consult Gardeners*; though, perhaps, we have not ten Gardiners in the Kingdom can give a Reason why the great South Window should recline in an Angle of $14^{\circ} 30'$. and the Declination of the Ceiling be $20^{\circ} 30'$. in the Latitude of $52^{\circ} 30'$. I find our Abridger thinks a Physician may understand too much.

The learned Professor goes on giving a most elegant physical Account of Heat, and observing the utmost Degree thereof that Water is capable of receiving, is 213° . (whence is evident the Reason of its extinguishing Fire, made of combustible
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ble Matter ; for all Combustibles requiring a greater Degree of Heat before they flame or burn, and Water surrounding all their Parts with no more than 213° . must prevent their burning, *i. e.* extinguish) but that Linseed Oil don't boil without 800° . and so though less dense than Water, is near three times hotter ; and concludes this Corollary, by saying, that it may be worthy our Enquiry, whether Iron, being much longer in melting than Gold, be not, when melted, hotter, though Gold be denser ? To which this Note, *pag. 63. This is opposite to Sir Isaac, and himself elsewhere.* Can a Proposal for an Enquiry after a probable Truth, be contradictory to that great Man, who never intended (the old being deposed) to set himself up for a new Tyrant of the Schools ? But as the great Author's Merit rises, so does his Abridger's Spleen ; and, rather than not oppose him, untruly makes him say what he did not say.

Pag. 73. The Professor describing an Improvement of his own of *Dalesme's* Machine, for making Wood Fires without Smoak; though, in his Description of his Iron^w, he says, the Funnel may be made square, or elliptical: Yet afterwards, calling it elliptical^x, in a sarcastical Note, we are told, *it chances to be a square Hole.* And, a little after, Dr. *Boerhaave* having thrown burning Coals, and plunged a lighted Brimstone Match into pure Alcohol, without setting it on Fire, and thence observing that the most inflammable of all Substances would not kindle, but where contiguous to the external Air, on its Surface, concludes that this particular remarkable Phenomenon was scarce taken Notice of. The Translator's Note on this Part, *pag. 74.* is, *Our Author says, that this is a Phenomenon, observed as yet by none; 'tis*

^w Vol. I. *inter* Pag. 202, & 203. ^x *Id.* Pag. 304.

very commonly seen every Day. *Vix observatum*, is very unjustly render'd, *observed as yet by none* : For the rest, 'tis like cracking the End of an Egg, and setting it on a Looking-Glass, very easy when known.

In his 100th Page, he furlily contradicts his Author, for saying, Amber yields a volatile acid Salt : he says ; No, 'tis neutral ; for, by a fix'd Alkali, you gain a *Sal Volatile Succini*, and the Acid is at Bottom joined to a fix'd Salt. This is a Method of making Salt of Amber our Dispensatory is a Stranger to. By neutral, I suppose, he means hanging in *equilibrio*, between Acid and Alkali ; and so the Scale must preponderate, where the Alkali is added ; and it then becomes an alkalious Salt, for the Acid is left at Bottom. I believe it has always been esteem'd an antiputrescent Medicine, as such order'd in some Stadia of putrid Fe-

vers, Small Pox, &c. and is a noble Diuretick; whereas, at this Rate, it must rather encrease than abate the Putrescence, and not be so apt to pass off by the Kidnies, especially where the Cohesion of the Blood is not supposed too strong. I examined the Nature of this Salt in the following Manner: To three Grains of it I put six Drops of Spirit of Sal Ammoniac; a considerable Ebullition ensued, with Effervescence, and the whole Salt was dissolved in twelve Minutes, the Spirit losing its urinous Scent; another Diagnostick of Acid and Alkali mix'd; again to a like Quantity, I put Spirit of Sulphur, but no Ebullition, nor was any of the Salt dissolved forty eight Hours after; and, put to Syrup of Violets, it immediately turn'd it red.

It would be tedious to pursue this Translator through all his groundless Contradictions; but as the next tends to the further clearing up the Dispute of
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the Existence of Alkalies in sound Bodies, I shall take some Notice of it. Dr. *Boerhaave* finding the Degrees of Heat a sound Body is capable of, to be from 40° . to 94° . by *Fahrenheit's* Thermometer², and that a Sparrow, a Dog, and a Cat, could not survive many Minutes in a Sugar-Baker's Room, heated to 146° .¹; that Water boils at 212° . in which Degree Waters and native Spirits are distill'd; but that Salts and Oils, from the fresh Juices of Animals, are scarce rais'd thereby, the Humours being only dried into a thick, hard, brittle, insipid, inodorous Matter, continuing unalter'd many Years; and wherefrom animal Salts and Oils, at any Time, may be procured: But since it requires more than 212° . of Heat to alkalize Animal Juices, and that the living Animal never comes up to half the Heat, how can such Salts exist in the living Animal, the preceding Arguments

² Vol. I. Pag. 414.¹ *Id.* Pag. 275.

that no such are found, consider'd? To which the Abridger, *This is very weak Reasoning: May we not say the same of Harts-horn? when certain Arguments may be brought to convince us of its Pre-existence.* As all our physical Knowledge arises from the Distinctions of Bodies, perceived by our Senses; as Harts-horn, not having undergone above 112 Degrees of Heat, is to the Taste smooth, soft, grateful, no ways piquant, and to the Smell inodorous; but its Salts alkalinized so severe to the Palate, as not to be tolerable in any Quantity alone; and to the Nose so sharp, as even to destroy the *Membrana Schneideriana*; I think, there is no room to imagine such Pre-existence, and he should have given us Reasons, instead of Assertions, to prove it.

The learned *Boerhaave*, proceeding to give a curious natural History of Water, and having taken Notice of its Effects on Salts, Earths, Metals, metallick Bodies, &c. observes,

observes, that it encreases the Bulk, as well as Weight of some Bodies, and quotes the 184th Experiment of the *Academie del Cimento*; where, says he, a solid Cone of Steel was nicely wrought, divided by Circles parallel to the Base; to which another was exactly fitted made of Wood, according to the Length of the ligneous Fibres, which, when soak'd in Water, would not admit the Steel Cone into its Cavity, nor enter that of another concave Cone, which before it did. This Process, after giving a most blundering Account of it, the Translator denies to be found in the Academy, and says^b, *Mr. Professor has taken this upon Credit.* I have not by me the original *Italian* Edition of this Book; but in the *English* Translation^c, pag. 105. there is the same Experiment, and with the same Success, unless one should cavil for calling that a Cone of Wood, which *Waller* calls a

^b Pag. 142.
the *Poultry*, 1685.

^c By R. Waller, F. R. S. printed in

conical Ring of Box ; and the little Difference that is between them, might proceed from his making the Translation from another Edition, more improv'd, wherein the Experiment might be carried further ; but as this of the Professor's is far enough to prove that Water encreases the Bulk of Bodies, to say any more of it would be from his Purpose. Indeed, the Prosecution of this Experiment exhibits one Phenomenon very curious, *viz.* that by letting the conical Ring lie in Water three whole Days, that it might have Time to penetrate through the whole Substance of the Wood ; then putting it on again, they observed that the Concavity of the Ring was stretch'd, the Bottom falling much lower upon the Stock, or Steel Cone, than it did at first. This serves to manifest the Reason for the great Tumefaction of the Parts, through which Animals pass in their Births ; and as it is an Observation I have no where met with, I hope you'll pardon this short Digression.

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As most of the subsequent Comments are little but unmannerly, as well as unmeaning Carplings; as in the second Volume, *pag.* 118. to *Boerhaave's* curious Analysis of the Blood, and recommending chymical Experiments for Discoveries, the Abridger puts this Note, *So that our Author, like a Top, goes round, but not forward.* And, *pag.* 164. he calls a most regular Process, *one without Head or Tail, &c.* Or they are generally of the same Nature as those I have before answer'd, *viz.* *Pag.* 73. he will make a Difference between common Sulphur, and Sulphur of Antimony, in two Notes to the Preface to the second Volume. And, *pag.* 131, 141. he denies that Chymistry produces any Thing new. He insists on Salts in the Blood over again, in *Vol.* II. *p.* 102, 104, 110, 127, 129, 153. and elsewhere; and the sameness of Oils, *p.* 73. and *Vol.* II. *p.* 27. I shall therefore only trouble you with two or three

three of his other Observations, which will set his Inclination to find Faults, and Incapacity to support his weak Objections, in a proper Light. Dr. *Boerhaave*, in the above-mentioned History of Water, having observed several of its Properties, infers, that we know no Body more penetrating than it, except Fire, the magnetick Virtue, and Light, if they are allow'd to be distinct, and act as Liquors^d: Yet the Abridger says, p. 133. *This Paragraph contradicts it self in every Article; for if he means by penetrabilior, more penetrating than Fire, magnetick Force and Light are more penetrating.* The Argument stands thus: *Boerhaave* says, six is more than three; wherein he contradicts himself, since I can prove that three is but half so much as six.

There are many other Places where he charges his Author absolutely falsely; as *Vol. II. pag. 141.* that Dr. *Boerhaave*

^d Pag. 556.

denies

denies the Pre-existence of an Acid in any Body ; and, *pag.* 153. that he owns fix'd and volatile Salts in the Blood, which he before denied: So, *pag.* 110. *that he owns an Acid in Urine, but knows not whence it comes* ; tho' his Author declares it to be marine Salt, taken in with the Aliment, because, being mix'd with Aqua Fortis, it dissolv'd Gold. *Pag.* 17. *Vol.* II. he says, his Author is too credulous to affirm, the strongest capital Lees, from quick Lime, will hurt Woollen Cloaths ; tho' every Soap-Boiler in Town generally, to his Cost, knows he is not too credulous.

And, *Vol.* II. *pag.* 64. the Professor, in his Process concerning Vinegar, observing in what Esteem it was among the Ancients, and its Use in ardent, putrid, and bilious Fevers ; its quenching the Thirst arising from venomous Bites, being good in Vomitings, Faintings, Small Pox, Measles, Plague, &c. Upon this, the Abridger cries out upon *excessive Ignorance, and never heard of such Paradoxes*

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doxes in Practice in his Life; because it is agreeable to the Practice of all Ages, to Reason, and Experience.

Pag. 181. His Author, having given the Process of *Æthiops mineral*, says, 'tis a Powder inodorous, tasteless, without Sharpness, and not entirely miscible with any Fluid; that given into the Body, it neither enters the lacteal, lymphatick, nor absorbent venous Vessels, but passes through the intestinal Tube out of the Body, only accidentally destroying Worms; that they are deceived who expect other Effects from it; and that he is in Pain for the Incautious, who give Infants and tender Children such Quantities of a foreign, unassimilable, fossil Mass; so much the more to be suspected, as thro' its Inactivity and Dulness it remains longer in the Body, it raises no Salivation, because it does not enter the Blood, nor is more active than any other tasteless ponderous Earth. To which we have this Note: *That it does not enter the Blood,*

Blood, or that it has appear'd in Ulcers in its proper Shape, are two Assertions equally true; but that it will not salivate, especially as here made, (i. e. cum triplo mercurio) is a Mistake, that every common Practitioner can contradict with Truth. Having many Years suspected the Virtues of *Aethiops mineral*, I have taken frequent Opportunities of observing its Effects, when given singly, and have found that the small Quantity of four Grains, in twenty four Hours, to a Child of five Years old, has visibly appear'd in the Stools, and that this Appearance was uniform and constant. I have known a Man troubled with Piles take half an Ounce a Day for Weeks, without any sensible Effect, save, in the Blackness of his Stools, his Pulse was no ways rais'd, no swelling of his Gums, nor the least Tendency to a Salivation; tho' 'twas mid Winter, and the Man, in the Course of his Occupation, abroad all Weathers, and often both Feet and Arms for Hours in cold Water. Hence if a Salivation has appear'd, after

taking *Æth. Min.* it must have been owing to some more powerful Mercurial, before applied, but accidentally then first exerting it self; since, from so small a Quantity appearing in the Stools, and so great a one making no Alteration in the Pulse and Body, there is no room to imagin it enters the Blood. I am well aware that several very worthy Gentlemen have had a high Opinion of this trifling Medicine. Dr. *Cheyne* mentions * a scorbutick Ulcer, very large, cured by giving large Quantities of this *Æth.* for four Months together, and that the *Æth.* forced it self through the sound Parts of the Leg and Skin, and stuck to those Parts of the Plaister that covered them, in its own proper Substance and Colour. As to this Appearance, 'twas, probably, owing to some of the Powder accidentally scatter'd on the Plaister or Leg; for there can be no Reason given why it should come to the sound Part of the Leg, more than any other of the Body, for I am

* Essay on the Gout, pag. 49.

sure the Doctor has no Notion of elective Medicines; were it in such Quantities in the Blood, it must equally perspire, and make an *Æthiop* of the Patient. That the worthy Doctor cured his Patient, I readily believe; but rather by the mercurial Purge he gave him once in ten Days, and the low cooling Diet he kept him to, than the *Æthiops*. I have known a Gentleman, upon reading this Paragraph, proceed in the same Manner, with equal Doses, and equal Length of Time; but the Patient having a nervous Disorder, the mercurial Purges were wanting, as well as the Success. And when another great and learned Author commends it as a good and safe Emmenagogue^s, I doubt not of the good Effects attending the Use of it, because always administer'd along with Calomel and Regin of Jalap Bolusses, or mix'd in Electuaries with prepared Steel, or else attended with large Quantities of *Lower* or *Mynsicht's* Tinctures of Steel, the Tinctures

^s *Emmenologia*, pag. 172.

of Castor, Saffron, Spirit of Sal Ammoniac, Elixir Proprietatis, or other powerful Emmenagogues †.

As the rest of the Comments are so trifling, and, in some Places, so scurrilous, as to deserve no further Notice; and, as to the Abridgment containing the whole of the Original, I think, I need say nothing further. All Mankind will, I suppose, allow me, that to abridge, *i. e.* to expunge the less useful, and retain the more valuable Part of a Work, requires rather more Judgment, than to compile the Work it self. I have given a Sketch of this Abridger's, and leave the Reader to decide; since, to shew his Deficiency this way, I must have transcrib'd both the Books: But he is not alone in envying the Professor; the whole Tribe of would-be Physicians, that bribe Footmen and Nurses to call them Doctor, will readily join him to pull down a Merit so much superior to their own, and leave

† *Emmenologia*, p. 110, to 117.

not even the meanest Arts untried to effect it. I have seen a little Medicafter, with Shrug Splenetick, smile a ghastly Grin, and cry, 'tis strange so great a Man, yet so unfortunate in his Prescriptions, he rarely cures a Patient; a Forgery as shameless as secure! Would they have him publish Quack Lists of Cures? or can any imagine that the most consummate Knowledge of Nature in general, the *Materia Medica*, and Animal OEconomy in particular, an intimate Acquaintance with all the Learning, and especially Medical, of both Ancients and Moderns, join'd to a vast Capacity, deep Attention, unwearied Industry, and most cautious Prudence, should make a Gentleman prescribe worse than he that wants all these Qualifications? or that blind Fortune can give better Success than the profoundest Judgment? But tho' there are some Enviars of the great Man's Merit, there are many more Admirers. The Learned and Skilful of our Profession, esteem and honour him now, as Posterity in general will in Time to come. I

I hope, your Goodness will attribute my having so long trespass'd on your Patience, to an ardent Desire I have of pleasing you, in doing Justice to injur'd Merit; tho' I am sensible the great *Boerhaave*

*Non tali auxilio nec defensoribus istis
Eget* —————

Yet should any learned Foreigner see such a Piece published in *England*, without some publick Notice, and Censure on it, he might be apt to think we were again sunk into the Barbarity of *Goths* and *Vandals*, and to Fondness of our selves, had sacrificed Gratitude, Reason, and even common Sense.

I am, SIR,

With greatest Respect,

Your most obedient,

most humble Servant,

J. ROGERS.

